



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2017-0779; Product Identifier 2017-NM-040-AD; Amendment 39-19301; AD 2018-11-13]**

**RIN 2120-AA64**

**Airworthiness Directives; The Boeing Company Airplanes**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

**SUMMARY:** We are adopting a new airworthiness directive (AD) for certain The Boeing Company Model 787-8 airplanes. This AD was prompted by a report of possible degraded bond-line performance of co-bonded upper wing stringer-to-skin joints. This AD requires repetitive inspections of certain upper wing stringers for any disbond and corrective actions, if necessary; and a terminating preventive modification of installing disbond arrestment (DBA) fasteners. This AD also requires revising the inspection or maintenance program to incorporate an airworthiness limitation. We are issuing this AD to address the unsafe condition on these products.

**DATES:** This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** For service information identified in this final rule, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminister Blvd., MC 110-SK57, Seal Beach, CA 90740-5600; telephone:

562-797-1717; Internet: <https://www.myboeingfleet.com>. You may view this service information at the FAA, Transport Standards Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195. It is also available on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2017-0779.

### **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2017-0779; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, the regulatory evaluation, any comments received, and other information. The address for Docket Operations (phone: 800-647-5527) is Docket Operations, U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

**FOR FURTHER INFORMATION CONTACT:** Allen Rauschendorfer, Aerospace Engineer, Airframe Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone and fax: 206-231-3528; email: [allen.rauschendorfer@faa.gov](mailto:allen.rauschendorfer@faa.gov).

### **SUPPLEMENTARY INFORMATION:**

#### **Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain The Boeing Company Model 787-8 airplanes. The NPRM was published in the Federal Register on August 25, 2017 (82 FR 40511). The NPRM was prompted by a report of possible degraded bond-line performance of co-bonded upper wing stringer-to-skin joints. The NPRM proposed to require repetitive inspections of certain upper wing stringers for any disbond, and corrective actions if necessary; and a terminating preventive modification of installing DBA fasteners. The

NPRM also proposed to require revising the inspection or maintenance program to incorporate an airworthiness limitation.

The degraded stringer bond-line does not meet the residual strength requirements if an adjacent stringer becomes disbonded due to induced damage at a critical location. We are issuing this AD to prevent upper wing stringer-to-skin joint disbonding, which can reduce the structural integrity of the airplane.

### **Comments**

We gave the public the opportunity to participate in developing this final rule. The following presents the comments received on the NPRM and the FAA's response to each comment.

### **Support for the NPRM**

One commenter, Ken Mayes, and United Airlines (UAL) expressed support for the NPRM.

### **Request to Specify Updated Service Information**

UAL, Japan Airlines (JAL), All Nippon Airways (ANA), and Boeing requested that we specify a later revision of the service information. Boeing pointed out that Issue 002 of Boeing Alert Service Bulletin B787-81205-SB570030-00 is expected to be released in the first half of 2018. JAL pointed out that Boeing has released Information Notice B787-81205-SB570030-00 IN-01, dated April 5, 2017, to include a certain special tool. JAL mentioned communications with Boeing regarding "location 2" fasteners that are for the dry bay installation and part of the basic design features. JAL also mentioned that Boeing communicated that certain specifications for ultraviolet protections were not the latest revisions in Boeing Alert Service Bulletin B787-81205-SB570030-00, Issue 001, dated March 17, 2017. JAL specifically mentioned its preference to avoid deviations based on these issues. UAL specified that seven airplanes from the UAL fleet are affected by the NPRM. ANA pointed out that Issue 002 of Boeing Alert Service Bulletin

B787-81205-SB570030-00 is expected to include alternative non-destructive test (NDT) procedures, alternative cleaning procedures, additional removal and installation specifications, and alternative special tools. ANA also pointed out that certain details regarding the new copper foils are incorrect in Issue 001 of the service information and that Issue 002 will correct those inaccuracies.

We do not consider that delaying this action until release of the planned service bulletin is warranted. Issue 002 of Boeing Alert Service Bulletin B787-81205-SB570030-00 is not yet approved, and we cannot specify future revisions of service information in this AD. Boeing Alert Service Bulletin B787-81205-SB570030-00, Issue 001, dated March 17, 2017, is the currently available revision, and it provides adequate information to address the identified unsafe condition. We have not reviewed the proposed Issue 002 of Boeing Alert Service Bulletin B787-81205-SB570030-00. However, the proposed Issue 002 of Boeing Alert Service Bulletin B787-81205-SB570030-00, is expected to provide more options, clarifications, and corrections, which may be helpful, but are not necessary to accomplish the requirements of this AD. These revisions are not expected to affect an operator's ability to comply with this AD. Therefore, we do not plan to wait for the release of Issue 002 of Boeing Alert Service Bulletin B787-81205-SB570030-00 before issuing this AD. However, we will consider requests for approval of an alternative method of compliance (AMOC) to allow the use of Issue 002 of Boeing Alert Service Bulletin B787-81205-SB570030-00 after it has been published, under the provisions of paragraph (l) of this AD. We have not changed this final rule regarding this issue.

#### **Request to Clarify Information Leading to AD Action**

Boeing requested that we clarify the information leading to the AD action in the SUMMARY of the NPRM and paragraph (e) of the proposed AD. The commenter

pointed out that Boeing notified the FAA of possible degraded bond-line performance, but that there have been no reports of stringer disbonds found in the fleet.

We agree for the reasons provided. We have revised the SUMMARY section of this final rule and paragraph (e) of this AD to specify that this AD was prompted by a report of possible degraded bond-line performance of co-bonded upper wing stringer-to-skin joints.

#### **Request to Clarify the Cause of the Possible Degraded Bond-Line Performance**

Boeing requested that we clarify the cause of the possible degraded bond-line performance. The commenter pointed out that a specific type of Boeing Material Specification (BMS) 8-308 peel ply, and exposure to cure times that exceeded 4 hours at a temperature of 355 Fahrenheit degrees ( $\pm 10$  Fahrenheit degrees), are contributing factors. The commenter also pointed out that other types of BMS 8-308 peel ply are not affected by the unsafe condition. The commenter also mentioned that the temperature specified (345 Fahrenheit degrees ( $\pm 10$  Fahrenheit degrees)) in Boeing Alert Service Bulletin B787-81205-SB570030-00, Issue 001, dated March 17, 2017, in the description of the incident was incorrect.

We agree that clarification is necessary, in that, the BMS 8-308 specification includes multiple different types of peel ply material, and not all BMS 8-308 material types are affected by this AD. In fact, the replacement peel ply material specified in the service information was also selected from the BMS 8-308 specification. However, we do not agree to specify the temperature in this AD, because that information is not restated in the final rule. We have not changed this final rule regarding this issue.

#### **Request to Clarify the Condition that Could Cause the Unsafe Condition**

Boeing requested that we revise the Discussion section of the NPRM to clarify the condition that could cause the unsafe condition. The commenter pointed out that the upper wing stringer-to-skin joint may not sustain limit load if a stringer has a one-bay

disbond and is adjacent to a critical stringer with a degraded bond-line, which could adversely affect the structural integrity of the airplane. The commenter also pointed out that the degraded bond-lines are good for ultimate load and long-term durability when not assuming an adjacent stringer disbond. The commenter stated that the only way to show less than limit load capability is to assume that the degraded bond-line is adjacent to a one-bay disbond.

We agree that clarification is necessary, in that, the unsafe condition is a residual strength requirement that assumes an already damaged structure. We have revised the Discussion section of this final rule to reflect this condition.

#### **Request to Clarify “Assumed” Conditions of Unsafe Condition**

Boeing requested that we revise the NPRM to specify that the unsafe condition is based on additional assumed conditions. The commenter stated that the NPRM would not prevent anything, as the structure is good for ultimate static and fatigue, but would ensure that no “assumed” disbonds could be adjacent to a degraded bond-line.

We disagree with the request to revise paragraph (e) of this AD. This AD mandates inspections and provides a terminating action for airplanes with a known manufacturing non-conformance, which, under certain conditions, could reduce the structural capability of the airframe to less than limit load. We have not changed this final rule regarding this issue.

#### **Request to Specify that the Unsafe Condition Does Not Develop**

Boeing requested that we revise the “FAA’s Determination” section of the NPRM to specify that while the unsafe condition could exist, it cannot develop. The commenter pointed out that the unsafe condition is a function of fabrication and not durability issues.

We disagree to make the requested wording change. The “FAA’s Determination” section of the NPRM is not restated in the final rule. We have not changed this final rule regarding this issue.

## **Conclusion**

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this final rule with the changes described previously and minor editorial changes. We have determined that these minor changes:

- Are consistent with the intent that was proposed in the NPRM for addressing the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM.

We also determined that these changes will not increase the economic burden on any operator or increase the scope of this final rule.

## **Related Service Information under 1 CFR part 51**

We reviewed Boeing Alert Service Bulletin B787-81205-SB570030-00, Issue 001, dated March 17, 2017. The service information describes procedures for inspection of certain upper wing stringers for any disbond and corrective actions; and for a preventive modification which consists of, depending on airplane configuration, applying copper foil to the upper wing at certain stringer and rib bay locations, installing DBA fasteners on the upper flanges of the upper wing stringers at the stringer and rib bay locations, applying cap seals to the DBA fasteners, and applying edge sealant to the stringers at the DBA fastener installation locations.

We have also reviewed Airworthiness Limitation (AWL) 57-AWL-13, “Inspection Requirements for In-Tank Fasteners and Edge Seal near Disbond Arrestment (DBA) Fastener Installations in Lightning Zone 2,” of Boeing 787 Special Compliance Items/Airworthiness Limitations, D011Z009-03-04, dated February 2017. This service information describes tasks for inspecting in-tank fasteners and edge seals near DBA fastener installations of lightning zone 2.

This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

### **Costs of Compliance**

We estimate that this AD affects 24 airplanes of U.S. registry. We estimate the following costs to comply with this AD:

#### **Estimated costs**

<b>Action</b>	<b>Labor cost</b>	<b>Parts cost</b>	<b>Cost per product</b>	<b>Cost on U.S. operators</b>
Inspection	49 work-hours X \$85 per hour = \$4,165 per inspection cycle	\$0	\$4,165 per inspection cycle	\$99,960 per inspection cycle
Modification	Up to 352 work-hour X \$85 per hour = \$29,920	\$1,902	Up to \$31,822	Up to \$763,728
Maintenance or Inspection Program Revision	1 work-hour X \$85 per hour = \$85	\$0	\$85	\$2,040

We have received no definitive data that would enable us to provide cost estimates for the on-condition actions specified in this AD.

### **Authority for this Rulemaking**

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by



prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

This AD is issued in accordance with authority delegated by the Executive Director, Aircraft Certification Service, as authorized by FAA Order 8000.51C. In accordance with that order, issuance of ADs is normally a function of the Compliance and Airworthiness Division, but during this transition period, the Executive Director has delegated the authority to issue ADs applicable to transport category airplanes and associated appliances to the Director of the System Oversight Division.

### **Regulatory Findings**

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Is not a “significant rule” under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

## **Adoption of the Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

### **PART 39 - AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

#### **§ 39.13 [Amended]**

2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

**2018-11-13 The Boeing Company:** Amendment 39-19301; Docket No. FAA-2017-0779; Product Identifier 2017-NM-040-AD.

#### **(a) Effective Date**

This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

#### **(b) Affected ADs**

None.

#### **(c) Applicability**

This AD applies to The Boeing Company Model 787-8 airplanes, certificated in any category, as identified in Boeing Alert Service Bulletin B787-81205-SB570030-00, Issue 001, dated March 17, 2017, and line numbers 10, 13, 15, 16, 17, 18, and 19.

#### **(d) Subject**

Air Transport Association (ATA) of America Code 57, Wings.

#### **(e) Unsafe Condition**

This AD was prompted by a report of possible degraded bond-line performance of co-bonded upper wing stringer-to-skin joints. We are issuing this AD to prevent upper

wing stringer-to-skin joint disbonding, which can reduce the structural integrity of the airplane.

**(f) Compliance**

Comply with this AD within the compliance times specified, unless already done.

**(g) Inspections and Corrective Actions**

For airplanes identified in Boeing Alert Service Bulletin B787-81205-SB570030-00, Issue 001, dated March 17, 2017, except as specified in paragraph (k)(1) of this AD, at the applicable time specified in paragraph 5., “Compliance,” of Boeing Alert Service Bulletin B787-81205-SB570030-00, Issue 001, dated March 17, 2017: Do an ultrasonic inspection for any disbond on the left side and right side upper wing stringers; and do all applicable corrective actions; in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin B787-81205-SB570030-00, Issue 001, dated March 17, 2017, except as specified in paragraph (k)(2) of this AD. Do all applicable corrective actions before further flight. Repeat the inspection of the upper wing stringers thereafter at the applicable intervals specified in paragraph 5., “Compliance,” of Boeing Alert Service Bulletin B787-81205-SB570030-00, Issue 001, dated March 17, 2017, until the actions required by paragraph (j) of this AD are done.

**(h) Maintenance or Inspection Program Revision**

(1) For airplanes identified in Boeing Alert Service Bulletin B787-81205-SB570030-00, Issue 001, dated March 17, 2017: Prior to or concurrently with accomplishing the actions required by paragraph (g) of this AD, revise the inspection or maintenance program, as applicable, to incorporate Airworthiness Limitation (AWL) 57-AWL-13, “Inspection Requirements for In-Tank Fasteners and Edge Seal near Disbond Arrestment (DBA) Fastener Installations in Lightning Zone 2,” of Boeing 787 Special Compliance Items/Airworthiness Limitations, D011Z009-03-04,

dated February 2017 (“AWL 57-AWL-13”). The initial compliance time for accomplishing the tasks specified in AWL 57-AWL-13 is within 24,000 flight cycles or 12 years, whichever occurs first, after accomplishing the actions specified in Boeing Alert Service Bulletin B787-81205-SB570030-00, Issue 001, dated March 17, 2017.

(2) For airplanes having line numbers 10, 13, and 15 through 19 inclusive: Within 60 days after the effective date of this AD, revise the inspection or maintenance program, as applicable, to incorporate AWL 57-AWL-13. The initial compliance time for accomplishing the tasks specified in AWL 57-AWL-13 is prior to the accumulation of 24,000 total flight cycles or within 12 years after the date of issuance of the original airworthiness certificate or date of issuance of the original export certificate of airworthiness, whichever occurs first.

**(i) No Alternative Actions or Intervals**

After the action required by paragraph (h) of this AD has been done, no alternative actions (e.g., inspections) or intervals may be used unless the actions or intervals are approved as an alternative method of compliance (AMOC) in accordance with the procedures specified in paragraph (l) of this AD.

**(j) Inspection and Modification**

For airplanes identified in Boeing Alert Service Bulletin B787-81205-SB570030-00, Issue 001, dated March 17, 2017, on which “PART 3: PREVENTIVE MODIFICATION” of the Accomplishment Instructions of Boeing Alert Service Bulletin B787-81205-SB570030-00, Issue 001, dated March 17, 2017, has not been done at all of the unrepaired areas of the upper wing stringers, except as specified in paragraph (k)(1) of this AD: At the applicable time specified in paragraph 5., “Compliance,” of Boeing Alert Service Bulletin B787-81205-SB570030-00, Issue 001, dated March 17, 2017, do the actions specified in paragraphs (j)(1) and (j)(2) of this AD, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin

B787-81205-SB570030-00, Issue 001, dated March 17, 2017, except as specified in paragraph (k)(2) of this AD. Doing the actions required by this paragraph terminates the repetitive inspections required by paragraph (g) of this AD.

(1) Do an ultrasonic inspection for any disbond on the left side and right side upper wing stringers, and do all applicable corrective actions. Do all applicable corrective actions before further flight.

(2) Do the preventive modification in accordance with “PART 3: PREVENTIVE MODIFICATION” of the Accomplishment Instructions of Boeing Alert Service Bulletin B787-81205-SB570030-00, Issue 001, dated March 17, 2017.

**(k) Exceptions to Service Information**

(1) For purposes of determining compliance with the requirements of this AD: Where Boeing Alert Service Bulletin B787-81205-SB570030-00, Issue 001, dated March 17, 2017, uses the phrase “the Issue 001 date of this service bulletin,” this AD requires using “the effective date of this AD.”

(2) Where Boeing Alert Service Bulletin B787-81205-SB570030-00, Issue 001, dated March 17, 2017, specifies contacting Boeing, and specifies that action as RC: This AD requires repair using a method approved in accordance with the procedures specified in paragraph (l) of this AD.

**(l) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, Seattle ACO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in paragraph (m) of this AD. Information may be emailed to: 9-ANM-Seattle-ACO-AMOC-Requests@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(3) An AMOC that provides an acceptable level of safety may be used for any repair, modification, or alteration required by this AD if it is approved by the Boeing Commercial Airplanes Organization Designation Authorization (ODA) that has been authorized by the Manager, Seattle ACO Branch, to make those findings. To be approved, the repair method, modification deviation, or alteration deviation must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

(4) Except as required by paragraph (k)(2) of this AD: For service information that contains steps that are labeled as RC, the provisions of paragraphs (l)(4)(i) and (l)(4)(ii) of this AD apply.

(i) The steps labeled as RC, including substeps under an RC step and any figures identified in an RC step, must be done to comply with the AD. If a step or substep is labeled “RC Exempt,” then the RC requirement is removed from that step or substep. An AMOC is required for any deviations to RC steps, including substeps and identified figures.

(ii) Steps not labeled as RC may be deviated from using accepted methods in accordance with the operator’s maintenance or inspection program without obtaining approval of an AMOC, provided the RC steps, including substeps and identified figures, can still be done as specified, and the airplane can be put back in an airworthy condition.

**(m) Related Information**

For more information about this AD, contact Allen Rauschendorfer, Aerospace Engineer, Airframe Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone and fax: 206-231-3528; email: allen.rauschendorfer@faa.gov.

**(n) Material Incorporated by Reference**

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) Boeing Alert Service Bulletin B787-81205-SB570030-00, Issue 001, dated March 17, 2017.

(ii) Boeing Airworthiness Limitation 57-AWL-13, “Inspection Requirements for In-Tank Fasteners and Edge Seal near Disbond Arrestment (DBA) Fastener Installations in Lightning Zone 2,” of Boeing 787 Special Compliance Items/Airworthiness Limitations, D011Z009-03-04, dated February 2017.

(3) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminister Blvd., MC 110-SK57, Seal Beach, CA 90740-5600; telephone: 562-797-1717; Internet: <https://www.myboeingfleet.com>.

(4) You may view this service information at the FAA, Transport Standards Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to:  
<http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Des Moines, Washington, on May 21, 2018.

James Cashdollar,  
Acting Director,  
System Oversight Division,  
Aircraft Certification Service.

[FR Doc. 2018-11816 Filed: 6/4/2018 8:45 am; Publication Date: 6/5/2018]